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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/584,299	07/26/2006	Zhikai Wang	2006_1023A	9015
513 7590 03/17/2009 WENDEROTH, LIND & PONACK, L.L.P. 1030 15th Street, N.W., Suite 400 East Washington, DC 20005-1503				
EXAMINER LEONARD, MICHAEL L.				
ART UNIT		PAPER NUMBER		
1796				
MAIL DATE		DELIVERY MODE		
03/17/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/584,299

**Applicant(s)**

WANG ET AL.

**Examiner**

MICHAEL LEONARD

**Art Unit**

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SI/02)  
Paper No(s)/Mail Date 06/23/2008
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

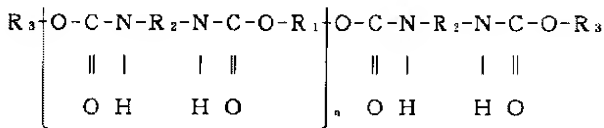
Claims 1-2 and 6 are rejected under 35 U.S.C. 102 (b) as being anticipated by U.S. Patent No. 4,837,273.

As to claims 1-2, and 6 Wamprecht discloses a new binder combination comprising (Abstract) 99-30 parts by weight of a OH-functional graft copolymer prepared from the copolymerization of hydroxy functional polybutadiene (Column 2, line 15), at least one unsaturated methacrylic acid ester containing C1-C6 hydrocarbon groups such as methyl methacrylate (Column 2, line 22), a aliphatic acrylic acid ester having 1-12 carbon atoms (Column 2, line 25), and a hydroxy containing methacrylic acid, such as 2-hydroxyethyl acrylate (Column 3, line 8). Wamprecht further discloses that the oligomers are incorporated in substantially random distribution of a graft copolymer (Column 3, lines 43-47). Wamprecht further discloses reacting the graft copolymer with 1-70 parts of a polyisocyanate containing urethane groups (Column 5, line 36 and Column 7, lines 28-33).

Wamprecht fails to disclose the structure of the final product.

However, due to the substantially identical composition the final product formula would meet the claimed formula and is thus inherent.

As further evidence of inherency, Matsunami (JP-2002/309185) discloses a polyurethane structure



wherein the R3 are the urethane bond residues of hydroxyl group content methacrylate and the urethane bond residue of a polybutadiene polyol at both ends of the final product (Claim 1). The polyurethane adhesive contains the same functional reactants as Wamprecht and thus enables the examiner to further define the final structure of the disclosed composition provided by Wamprecht. As evidenced by the formula disclosed by Matsunami the composition disclosed by Wamprecht would have the same structure as instant claim 1 and thus would be inherent.

As to claim 6, Wamprecht fails to disclose the density of radiation curable functional groups. However, due the substantially identical polymer is can be deemed inherent that the density of the radiation curable groups (unsaturated groups) would fall within the claimed range.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3-5, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over as being unpatentable over U.S. Patent No. 4,837,273 to Wamprecht et al. in view of JP-2002/309185 to Matsunami et al.

As to claims 3-5, Matsunami discloses a preferred molecular weight of 10,000-30,000 because the coating nature and tackiness worsens at weights less than 5,000 and weights greater than 100,000.

As to claim 9, Matsunami disclose the use of tackifiers such as rosin compounds, rosin ester compounds and hydrogenation petroleum resin in an amount of 1 to 50 weight % of the total quantity of urethane meta acrylate system (0032).

Wamprecht and Matsunami are analogous art because they are from the same field of endeavor with respect to polymer composition comprising block co-polymers of methacrylate and polybutadiene polyols.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to form a final product with terminal vinyl groups as disclosed by Matsunami from the polymer composition as disclosed by Wamprecht. Wamprecht discloses wherein the block copolymers are in random distribution and these copolymers are reacted in excess in comparison to the polyisocyanate crosslinkers (Wamprecht, Column 5, lines 49-53). The final product of Wamprecht would thus contain terminal vinyl groups.

Claims 7-8 and 10 are rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S. Patent No. 4,837,273 to Wamprecht et al. in view of JP-2002/309185 to Matsunami et al. in view of U.S. Patent Pub. No 2004/0214937 to Miller et al.

As to claims 7 and 8, Wamprecht discloses in the block co-polymer composition the use of carboxylic acids in the formulation. Wamprecht fails to disclose the use of tertiary amine carboxylic acids with hydroxy functionality.

Miller discloses a polymer composition comprising a moldable hybrid urethane-vinyl polymer composition made from methacrylate and butadienes (0022 and 0028), that also contains crosslinking agents or dispersion enhancing monomer such as DMPA, dimethylolpropanoic acid (0074). Miller discloses that the crosslinking agents are optional but desirable and are utilized to produce good properties of the composition once applied to suitable substrates (0105).

Wamprecht and Miller are analogous art because they are from the same field of endeavor with respect to polymer compositions containing urethane linkages, polybutadienes, and methacrylate polyol compounds.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use DMPA as a crosslinking agent in the formation of the polyacrylate resin disclosed by Wamprecht to improve properties of coatings and articles such as strength, resistance to water and alcohol, improved chemical, abrasion, mar resistance and improved adhesion (Miller, 0105).

As to claim 9, Miller discloses the urethane-vinyl or acrylic polymer can utilize at least one lubricant or processing aid and be coated onto a polymer substrate or article to form a laminate (0110).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL LEONARD whose telephone number is (571)270-7450. The examiner can normally be reached on Mon-Fri 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/MICHAEL LEONARD/

Examiner, Art Unit 1796

/Randy Gulakowski/

Supervisory Patent Examiner, Art Unit 1796